

Application No.: 09/863,131
Amendment Dated: July 31, 2003
Reply to Office Action of: April 8, 2003

MTS-3252US

Remarks / Arguments:

The pending claims are 1-2 and 5-8 and claim 13. Claim 1 has been amended to include features similar to those of claims 3-4. Claims 3-4 have been cancelled. Claim 7 has been amended to reflect the cancellation of claims 3-4. Claim 13 is newly added, and is supported by the originally filed application at, for example, Figure 3. No new matter has been introduced therein.

Figure 6 has been amended as attached to correct a clerical error. Additionally, a red marked-up copy (i.e., an annotated copy) of Figure 6 is attached, highlighting the changes. No new matter has been added.

Claims 1-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nishiyama et al. (JP 2000050584). Claims 7-8 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Nishiyama in view of Mildice (U.S. Patent No. 6,252,331).

Applicants' invention, as recited by amended claim 1, includes features which are neither disclosed nor suggested by the art of record, for example:

... at least one of said first rotator portions being magnetically coupled with at least one of said second rotator portions, at least one of said second rotator portions having a plurality of inverted circular arc-shaped notches on a circumferential portion of a substantially circular plate or a substantially cylindrical column, and a full or partial contour portion of at least one of said notches opposes a respective one of said permanent magnet...

This means that at least one of first rotator portions 2 of the motor recited in claim 1 is magnetically coupled with at least one of second rotator portions 3. The at least one second rotator portion 3 includes a substantially circular plate or a substantially cylindrical column having a plurality of inverted circular arc-shaped notches 9 on a circumferential portion of the circular plate or cylindrical column. At least a portion of a contour of one of notches 9 in second rotator portion 3 is positioned opposite a respective permanent magnet 1 in first rotator portion 2.

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These features are disclosed in the originally filed application, for example, at claims 3-4; page 24, lines 18-23; page 27, lines 10-16; page 31, lines 4-8; page 33, lines 9-13; and at Figures 1-3. No new matter has been added.

As shown in Figure 1 of the present application, first rotator portions 2 (including permanent magnets 1) are in direct contact with second rotator portion 3 (having magnetic saliency). As such, first rotator portions 2 are magnetically coupled with second rotator portion 3.

In contrast, Nishiyama discloses nonmagnetic member 5 separating first rotator portion 2 (including permanent magnet 6) from second rotator portion 3 (See Figure 1). As such, first rotator portion 2 and second rotator portion 3 are not magnetically coupled. If first rotator portion 2 was in direct contact with second rotator portion 3 in Nishiyama, magnetic flux leakage would undesirably occur towards the axial direction, as illustrated in Exhibit A.

Second rotator portion 3 recited in claim 1 of the present application includes a plurality of inverted circular arc-shaped notches 9 on a circumferential portion thereof. At least a portion of a contour portion of one of notches 9 is positioned opposite a respective permanent magnet 1 of first rotator portion 2. As such, permanent magnet 1 faces air because of the void provided by notch 9. Because permanent magnet 1 faces air having a relatively high magnetic resistance, magnetic flux leakage is substantially reduced or eliminated, as illustrated in Exhibit B. Therefore, a nonmagnetic member between first rotator portion 2 and second rotator portion 3 (i.e., nonmagnetic member 5 illustrated in Figure 1 of Nishiyama) is unnecessary.

In contrast, second rotator portion 3 in Nishiyama does not have notches/voids along a circumferential portion thereof. As opposed to providing notches 9, Nishiyama substantially reduces magnetic flux leakage by separating the rotator portions 2 and 3 using nonmagnetic member 5.

As such, Nishiyama teaches a very different configuration from that recited by claim 1 of the present application. Midge does not make up for the deficiencies

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of Nishiyama, and as such, even by combining Nishiyama and Mildice, Applicants' claimed motor is not achieved.

It is because Applicants include the above-recited structure of claim 1, that the following advantages are achieved. A motor with reduced mechanical loss that efficiently generates magnetic torque, without a nonmagnetic member 5, is provided.

Accordingly, for the reasons set forth above, claim 1 is patentable over the art of record. Claims 2, 5-8, and 13 include all of the features of claim 1 from which they depend, either directly or indirectly. Thus, claims 2, 5-8, and 13 are also patentable over the art of record for the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,

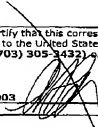

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Attachments: Figure 6 (Replacement sheet)
Figure 6 (Annotated sheet)
Exhibits A-B (1 sheet)

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